

REMARKS

Claims 1-44 are pending in the application and have been rejected. Claims 1, 12, 23, 27, and 38 are hereby amended.

Claims 1-5, 7, 9-16, and 18-39 have been rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 6,721,980 ("*Price*") in view of United States Patent No. 5,577,399 ("*Whipple*") and further in view of United States Patent No. 1,282,980 ("*Takach*").

Claims 6, 8, and 17 have been rejected under 35 U.S.C. § 103(a) as being obvious over *Price* in view of *Whipple* and *Takach* and further in view of United States Patent No. 5,787,531 ("*Pepe*").

Claim 40 has been rejected under 35 U.S.C. § 103(a) as being obvious over *Price* in view of *Whipple* and *Takach* and further in view of United States Patent No. 4,805,633 ("*Kotani*").

Claims 41-44 have been rejected under 35 U.S.C. § 103(a) as being obvious over *Price* in view of *Whipple* and *Takach* and further in view of United States Patent Application Document No. 2002/0070866 ("*Newham*").

Applicants traverse each of the aforementioned rejections and maintain that, as explained hereinafter, the pending claims as amended herein are patentable over the prior art.

**1. Claims 1-5, 7, 9-16, and 18-39 Are Patentable Over
Price In View of Whipple and Takach.**

(a) Price's Systems and Methods Are Fundamentally Different.

Price's systems and methods differ fundamentally from those of the instant invention and claims 1-5, 7, 9-16, and 18-39 are patentable over *Price*, *Whipple* and *Takach*, whether those references are taken alone or in any combination.

Unlike *Price*, the adjustable mattress and pillow systems of the claimed invention comprise a mattress which adapts, based on a user's position on the mattress and in response to variation of such position, to an optimum contour for support of the user's body. The electrically conductive sensing mat used in the claimed invention receives and

processes electrical signals from the mat which vary in relationship to the width of mat area compressed by the user and the pressure exerted on the mat as the position of the user shifts.

The air/fluid compartments of the pillow and mattress used in the instant invention may be inflated or deflated based on a user's presetting control parameters that modulate microprocessor-controlled valves. In the claimed invention, the contour of the pillow and mattress adapts to a preset contour selected by the user as an optimum profile for his or her body and head shape as presented in different sleeping poses.

In contrast, *Price's* systems and methods are directed to preventing a user from developing pressure ulcers by minimizing mattress contact pressure. *Price's* systems and methods do not change the contour of a mattress and pillow as necessary to fit a variety of body shapes according to changes in a user's sleeping pose. Nor does *Price* monitor the width of a sensing area compressed by a user and the pressure exerted on the mat as the position of the user shifts.

Further, *Price* does not describe adjustable mattress and pillow systems in which a sensing mat is placed *on top* of a mattress at a position which is below a pillow and which will support a user's upper body. *Price's* sensor is positioned *between* a support surface and an air bladder and measures the difference in forces exerted by the user and air bladder. *Price*, column 1, line 59-61. Thus, *Price* differs fundamentally from the claimed methods and systems, in which the sensor mat is in direct contact with a user, generates electrical signals which vary in relationship to the width of compressed area and the pressure exerted on the mat as the position of the user shifts, and adjusts a supporting pillow and mattress in accordance with preprogrammed settings.

Additionally, whereas the objective of *Price's* system is *minimize* the force between a user and a supporting air bladder (column 1, lines 61-65), systems and methods of the instant invention may seek to *maximize* the force exerted by the supporting pillow and mattress. For example, unlike the systems of *Price* – which are used with pressure ulcer patients (column 1, lines 9-14) - the systems and methods of the instant invention may maximize the supporting force applied by a pillow to a user's neck.

Price's methods and systems would prove to be unsuitable for use in the care and treatment of a patient whose chronic neck pain requires maximizing the force applied by a supporting pillow.

Nor does *Price* describe a sensor which covers less than the entire surface area of a supporting mattress. While *Price* discloses that the number of sensor zones used in his system may vary (column 11, lines 7-20), the system illustrated by *Price* relates to "sensing and mapping interface pressures against the entire body contact area of [a] patient." *Price*, column 5, line 67- column 6, line 1. Thus, the position of *Price's* sensor cannot be optimized conveniently to monitor the exertion of forces and changes in the width of a compressed area as the position of a user's body changes.

(b) There Was No Legitimate Basis to Combine *Price*, *Whipple* and *Takach*.

Prior to the effective filing date of claims 1-5, 7, 9-16, and 18-39, there was no suggestion or motivation that would have led those of ordinary skill in the art to modify and combine the disclosures of *Price*, *Whipple* and *Takach* in the manner advocated by the Examiner, nor was there a reasonable expectation that such modifications and combinations would prove successful. See *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 65 U.S.P.Q.2d 1961, *reh'g en banc denied* 2003 U.S. App. LEXIS 11897 (Fed. Cir. May 28, 2003) (a showing of obviousness requires a motivation or suggestion to combine or modify prior art references, coupled with a reasonable expectation of success).

As explained herein, the only way *Price's* mattress system, *Whipple's* appliance pump pressure sensor, and *Takesh's* mattress with manual control valves could have been modified and combined as suggested by the Examiner was to have used the invention of Applicants' claims as a template. In other words, the Examiner resorted to impermissible hindsight in evaluating the obviousness of the claims at issue. *In re Kotzab*, 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000).

(c) The Claimed Invention Is Patentable Over *Price*, *Whipple* and *Takesh*.

Whipple's disclosure of a conductive, elastomeric pressure sensor useful in household appliances does not provide any basis to modify all of the distinguishing

features of *Price* described above to arrive at the claimed invention. The essential differences between *Price* and the claimed invention detailed above are not obviated by substituting an elastomeric pressure sensor for *Price*'s sensing material. *Whipple*'s sensor functions to sense pressure only within a fluid pump and the Examiner has not cited any prior art which would have motivated skilled artisans to substitute an appropriately modified version of that fluid pump sensor for the contact pressure sensor used in *Price*.

Takach merely provides a mattress that may be inflated to the extent desired by a user through use of manual control valves. In *Takach*, mattress hardness - but not mattress contour - is controlled. There is no suggestion in *Takach* that mattress contour and pillow contour could be adjusted to fit a variety of body shapes as presented in different sleeping poses, as accomplished by the invention of the claims at issue. Further, there is no suggestion in *Takach* that fluid flow to the pillow can be monitored and controlled independently of mattress fluid flow.

Therefore, even if skilled artisans were motivated to combine *Price*, *Whipple*, and *Takach*, such a combination would not yield the systems or methods of claims 1-5, 7, 9-16, and 18-39. *Whipple* and *Takach* do not provide the features of the claimed invention which are missing from *Price*, and modifying *Price*, *Whipple*, and *Takach* to arrive at the claimed invention necessarily requires the exercise of impermissible hindsight.

**2. Claims 6, 8, and 17 are Patentable Over
Price In View of Whipple, Takach, and Pepe.**

Pepe provides a mattress which consists of multiple air cells that are interconnected through a single air passage in order to minimize the interface pressure of the portion of a user's skin which is in contact with the mattress. *Pepe* equalizes the pressure - but not change in contour - of a mattress and pillow.

Short of impermissible hindsight based on the invention of claims 6, 8, and 17, there is no basis to suppose that skilled artisans would have taken *Pepe*'s disclosure of the use of liquid in a wholly distinct type of mattress system and used liquid fluids in a

mattress system based on the combinations and modifications of *Price*, *Whipple*, and *Takach* discussed above.

3. Claim 40 Is Patentable Over *Price* In View of *Whipple*, *Takach*, and *Kotani*.

Kotani describes a displacement sensor used in a stethoscope; *Kotani's* sensor only senses displacement.

Without employing impermissible hindsight based on the invention of claim 40, there is no basis to suppose that skilled artisans would have incorporated a suitably modified version of *Kotani's* stethoscope sensor into a mattress system based on the combinations and modifications of *Price*, *Whipple*, and *Takach* discussed above.

4. Claims 41-44 Are Patentable Over *Price* In View of *Whipple*, *Takach*, and *Newham*.

Newham's capacitive array sensor senses the presence of a user, like a proximity switch button used in an elevator.

Without employing impermissible hindsight based on the invention of claims 41-44, there is no basis to suppose that skilled artisans would have incorporated a suitably modified version of *Newham's* capacitive array sensor into a mattress system based on the combinations and modifications of *Price*, *Whipple*, and *Takach* discussed above.

5. Conclusion.

As set forth above, *Price's* systems and methods differ fundamentally from those of the instant invention. The permutations and modifications of *Price*, *Whipple*, *Takach*, *Kotani*, *Pepe*, and *Newham* which provide the bases of the Examiner's obviousness rejections are grounded on impermissible hindsight.

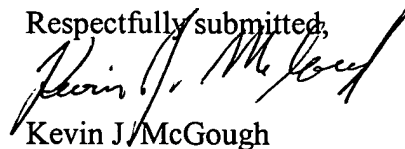
Each of the pending claims are patentable over *Price*, *Whipple*, *Takach*, *Kotani*, *Pepe*, and *Newham*, whether those references are taken alone or in any combinations.

Accordingly, Applicants respectfully request that the rejections of claims 1-44 be withdrawn and that all of those claims be passed to issue.

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